

Claims

We claim:

1. A communication system, comprising:

5 phone line side circuitry that may be coupled to phone lines;

10 powered side circuitry that may be coupled to the phone line side circuitry through an isolation barrier;

15 sub C4 } phone line side integrated ringer circuitry within the phone line side circuitry; and

20 powered side integrated ringer circuitry within the powered side circuitry.

2. The communication system of claim 1, further comprising the isolation barrier

15 coupled between the phone line side circuitry and the powered side circuitry, the isolation barrier being a capacitive barrier.

- 20 3. The communication system of claim 1, wherein the phone line side circuitry and

the powered side circuitry are configured to communicate across the isolation barrier through digital signals.

- 25 4. The communication system of claim 3, the digital signals including at least a first

digital ringer signal.

5. The communication system of claim 4, the phone line side circuitry and the

powered side circuitry being capable of transmitting the digital signals bidirectionally across the isolation barrier, the digital signals including at least the first digital ringer signal for transmission in a first direction across the isolation barrier and at least a second digital ringer signal for transmission in a second direction across the isolation barrier.

6. The communication system of claim 5, further comprising the isolation barrier coupled between the phone line side circuitry and the powered side circuitry, the isolation barrier being a capacitive barrier.

5 7. The communication system of claim 1, further comprising the isolation barrier coupled between the phone line side circuitry and the powered side circuitry, the isolation barrier comprising one or more capacitors, wherein the phone line side circuitry and the powered side circuitry are configured to communicate across the isolation barrier through digital signals.

10 8. The communication system of claim 1, the phone line side integrated ringer circuitry comprising ringer burst detection circuitry.

15 9. The communication system of claim 8, the ringer burst detection circuitry being powered at least in part by power transmitted across the isolation barrier.

10. The communication system of claim 1, the powered side integrated ringer circuitry comprising ringer timing circuitry.

11. The communication system of claim 10, phone line side integrated ringer circuitry comprising ringer burst detection circuitry.

12. A communication system, comprising:

phone line side circuitry that may be coupled to phone lines;

25 } powered side circuitry;

an isolation barrier coupled between the phone line side circuitry and the powered side circuitry, the isolation barrier allowing the bidirectional communication of digital signals from the phone line side circuitry and the powered side circuitry;

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phone line side integrated ringer circuitry within the phone line side circuitry; and

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powered side integrated ringer circuitry within the powered side circuitry.

13. The system of claim 12, wherein the phone line side integrated ringer circuitry may be powered at least in part by power extracted from signals transmitted across the isolation barrier.

10 14. The communication system of claim 12, the phone line side integrated ringer circuitry comprising ringer burst detection circuitry.

15 15. The communication system of claim 8, the digital signals including at least a signal indicative of a ringer burst transmitted from the phone line side circuitry to the powered side circuitry.

16. The communication system of claim 12, the powered side integrated ringer circuitry comprising ringer timing circuitry.

20 17. The communication system of claim 16, the digital signals including at least a ringer timing signal transmitted from the powered side circuitry to the phone line side circuitry.

18. A method of providing a communication system that may be coupled to a phone line, comprising:

25 *sub a6* } coupling an isolation barrier between powered side circuitry and phone line side circuitry;

and

partitioning ringer circuitry between both the powered side circuitry and the phone line side circuitry such that first integrated ringer circuitry is located within the

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powered side circuitry and a second integrated ringer circuitry is located with the phone line side circuitry.

19. The method of claim 18, further comprising utilizing a capacitive barrier to isolate
5 the powered side circuitry and the phone line side circuitry.

20. The method of claim 19, further comprising passing digital data bidirectionally across the isolation barrier.

- 10 21. The method of claim 20 further comprising transmitting digital ringer data
bidirectionally across the isolation barrier.

22. The method of claim 20, further comprising powering at least a portion of the second integrated ringer circuitry with power transmitted across the isolation barrier.

23. The method of claim 19 further comprising transmitting digital ringer burst signals from the first integrated ringer circuitry to the powered side circuitry.

24. The method of claim 19 further comprising transmitting digital ringer timing
20 signals from the second integrated ringer circuitry to the phone line side circuitry.